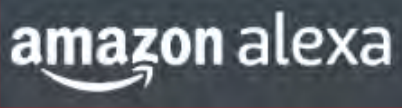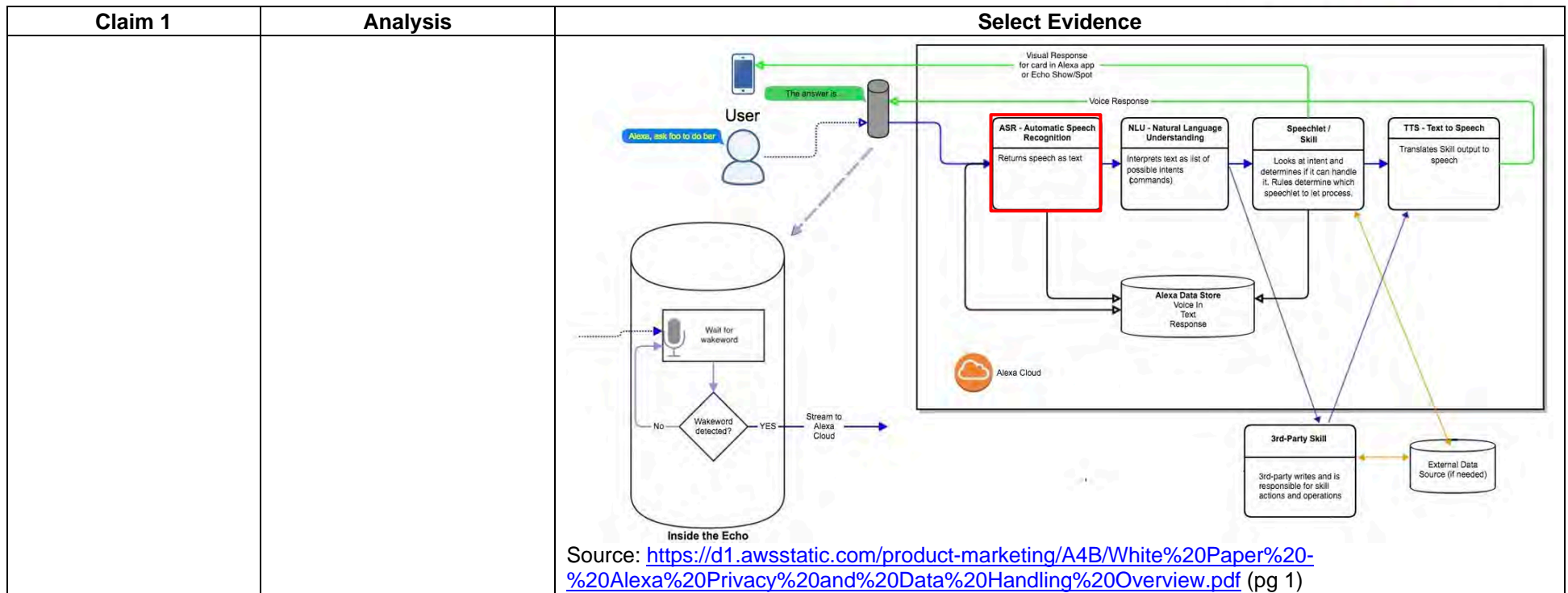# EXHIBIT N

Non-limiting example of infringement based on information presently available (draft/subject to revision).
Claim preamble may not serve as a limitation.
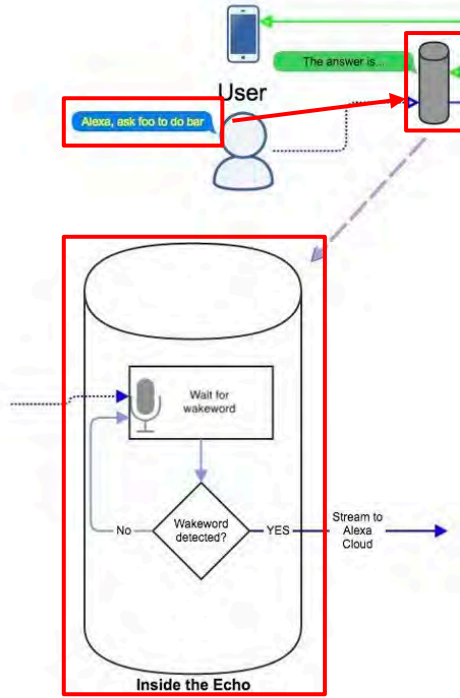
GLOBAL **IP LAW** GROUP

U.S. Patent No. 6,785,647: Amazon Alexa

Claim 1	Analysis	Select Evidence
A method of speech recognition comprising the acts of:	Amazon performs the method of speech recognition. Amazon's Alexa is a cloud-based voice service that recognizes speech input by the user.	 Source: https://developer.amazon.com/en-US/alexa/devices **3. What happens when I speak to Alexa?** When you speak to Alexa, a recording of what you asked Alexa is sent to Amazon's cloud where we process your request and other information to respond to you. For example, when you ask "Alexa, play top hits on Amazon Music" we use the recording of your request and information from Amazon Music to play top hits. Source: https://www.amazon.com/gp/help/customer/display.html/ref=help_search_1-4?ie=UTF8&nodeId=201602230&qid=1575887896&sr=1-4 **Automatic Speech Recognition (ASR)** The first Alexa system to receive data is Automatic Speech Recognition (ASR). It takes the audio stream and turns it into a text string (or set of possible text strings) that are sent to the Natural Language Understanding (NLU) system. Source: https://d1.awsstatic.com/product-marketing/A4B/White%20Paper%20-%20Alexa%20Privacy%20and%20Data%20Handling%20Overview.pdf (pg 2).

Non-limiting example of infringement based on information presently available (draft/subject to revision).
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Claim 1	Analysis	Select Evidence
		 Source: https://d1.awsstatic.com/product-marketing/A4B/White%20Paper%20-%20Alexa%20Privacy%20and%20Data%20Handling%20Overview.pdf (pg 1)

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Claim 1	Analysis	Select Evidence
receiving speech signals into a front-end processor;	The Amazon Alexa receives speech signals into a front-end processor. Amazon Echo devices, such as the Echo Show 8, receive speech signals from the user.	**Echo Devices** Echo devices are the input and output devices for Alexa, and we designed and built them, from the beginning, with multiple layers of security and privacy protections and controls. . . . Source: https://d1.awsstatic.com/product-marketing/A4B/White%20Paper%20-%20Alexa%20Privacy%20and%20Data%20Handling%20Overview.pdf (pg 2, 1) # What are Alexa Built-in Devices? The world's leading OEMs offer Alexa Built-in devices that let customers talk directly with Alexa through a microphone and speaker. Alexa turns your device into a smart device, and expands its capabilities. Customers can ask Alexa for help with everyday tasks and entertainment, and control Alexa connected devices or their own device. Source: https://developer.amazon.com/en-US/alexa/devices/alexa-built-in

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Claim 1	Analysis	Select Evidence
	For example, the Amazon Echo Show 8 (3rd Gen) includes an Octa-Core SoC processor.	. . . **Processor** Octa-Core SoC with Amazon AZ2 Neural Network Engine . . . **Generation** Echo Show 8 (3rd Gen) – 2023 release Source: https://www.amazon.com/All-New-Echo-Show-8/dp/B0BLS3Y632/ref=p13n_ds_purchase_sim_1p_dp_desktop_d_sccl_2_3/134-9932162-3105810?pd_rd_w=hwWLA&content-id=amzn1.sym.64223ae0-1d72-4c45-bd82-deae5f3f3050&pf_rd_p=64223ae0-1d72-4c45-bd82-deae5f3f3050&pf_rd_r=HRE2VZETN76BDZRN5NQP&pd_rd_wg=Htdl2&pd_rd_r=f2236e04-9791-4679-a1d5-0d33f2fba091&pd_rd_i=B0BLS3Y632&th=1

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Non-limiting example of infringement based on information presently available (draft/subject to revision).
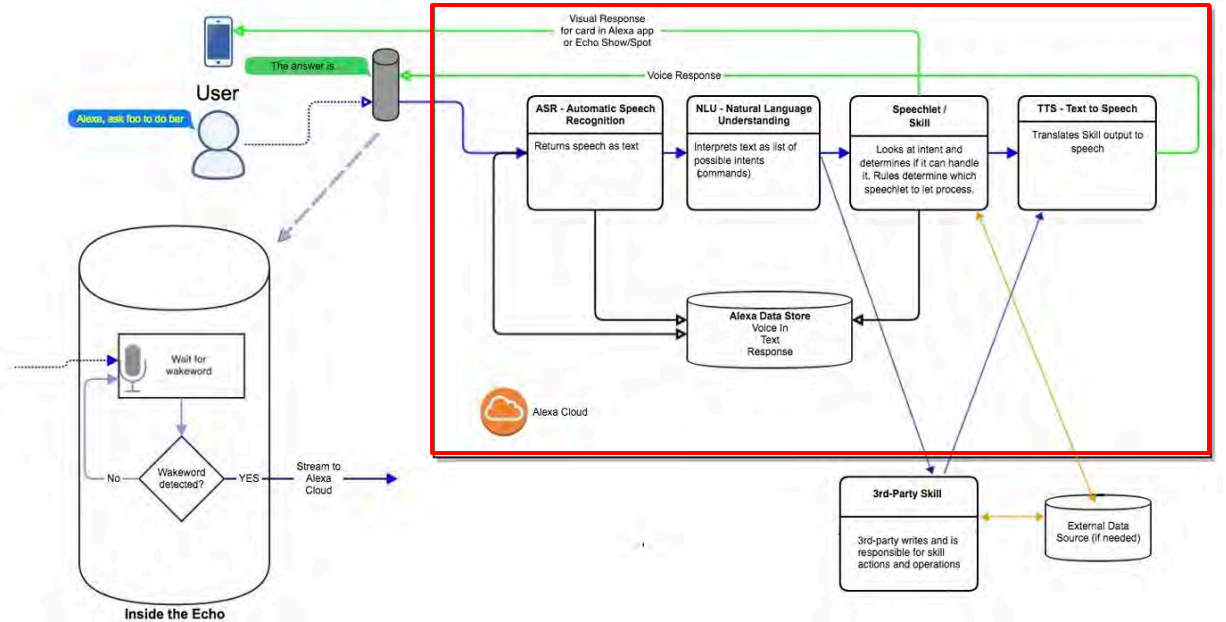Claim preamble may not serve as a limitation.

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Claim 1	Analysis	Select Evidence
storing at least some speaker-dependent and/or speaker group-dependent resources used for speech recognition in a network-attached server,	Amazon stores at least some speaker-dependent and/or speaker group-dependent resources used for speech recognition in a network-attached server. A user's voice ID is stored on the cloud for at least 18 months for Alexa to recognize. Each user can create their own voice profile. The voice profiles include information about unique characteristics of each user's voice. These user profiles can be referred to as "speaker-dependent resources" (Spec., col. 7, lines 21-25) through which Alexa recognizes the specific user and personalizes responses. These profiles are stored in the cloud.	**19. How does voice ID work?** You can create a voice ID, so Alexa can call you by name and do more to personalize your experience. When you create a voice ID, Alexa uses recordings of your voice to create an acoustic model of your voice characteristics and to update that model over time to improve Alexa's ability to recognize you. Alexa stores these acoustic models in the cloud. If your voice ID is not recognized for 18 months, we will automatically delete the acoustic model for your voice. If Alexa recognizes your voice when you are using a third-party skill, that skill may receive a numeric identifier that allows it to distinguish you from other users in your Source: https://www.amazon.com/gp/help/customer/display.html/ref=help_search_1-4?ie=UTF8&nodeId=201602230&qid=1575887896&sr=1-4 # Data Retention and Use in Alexa Alexa is designed to get smarter every day—this is accomplished through the power of machine learning and the cloud. The more a customer uses Alexa, the more it adapts to their speech patterns, vocabulary, and personal preferences. When the customer says the wake word, their subsequent phrases are processed and stored in the cloud to respond to the customer's request and to improve the customer's experience and our services, including training our speech recognition and natural language understanding systems so Alexa can better understand customers' requests. . . . Sensitive customer data in the Alexa system (such as voice recordings) is stored in databases and encrypted at rest and in transit, using Amazon's internal key management systems. Source: https://d1.awsstatic.com/product-marketing/A4B/White%20Paper%20-%20Alexa%20Privacy%20and%20Data%20Handling%20Overview.pdf (pg. 6, 7).

Non-limiting example of infringement based on information presently available (draft/subject to revision).
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Claim 1	Analysis	Select Evidence
including resources that implement a mapping between the speech signals and tokens that have meaning to a voice enabled application;	Amazon's storage includes resources that implement a mapping between the speech signals and tokens that have meaning to a voice enabled application. The voice profiles and/or acoustic models are used to translate audio signals into phones, which are stitched into words. These models contain speaker-specific voice characteristics and Alexa can identify the words that have meaning to different applications.	**19. How does voice ID work?** You can create a voice ID, so Alexa can call you by name and do more to personalize your experience. When you create a voice ID, Alexa uses recordings of your voice to create an acoustic model of your voice characteristics and to update that model over time to improve Alexa's ability to recognize you. Alexa stores these acoustic models in the cloud. If your voice ID is not recognized for 18 months, we will automatically delete the acoustic model for your voice. If Alexa recognizes your voice when you are using a third-party skill, that skill may receive a numeric identifier that allows it to distinguish you from other users in your Source: https://www.amazon.com/gp/help/customer/display.html/ref=help_search_1-4?ie=UTF8&nodeId=201602230&qid=1575887896&sr=1-4 According to Adi Agashe, Program Manager at Microsoft, Alexa is built based on natural language processing (NLP), a procedure of converting speech into words, sounds, and ideas. • Amazon records your words. Indeed, interpreting sounds takes up a lot of computational power, **the recording of your speech is sent to Amazon's servers to be analyzed** more efficiently. *Computational power: refers to the speed that instructions are carried out and is normally expressed in terms of kiloflops, megaflops, etc.* • Amazon breaks down your "orders" into individual sounds. It then consults a database containing various words' pronunciations to **find which words most closely correspond to the combination of individual sounds.** • It then **identifies important words to make sense of the tasks** and carry out corresponding functions. For instance, if Alexa notices words like *"sport"* or *"basketball"*, it would open the sports app. • **Amazon's servers send the information back to your device and Alexa may speak.** If Alexa needs to say anything back, it would go through the same process described above, but in reverse order Source: https://towardsdatascience.com/how-amazon-alexa-works-your-guide-to-natural-language-processing-ai-7506004709d3

Non-limiting example of infringement based on information presently available (draft/subject to revision).
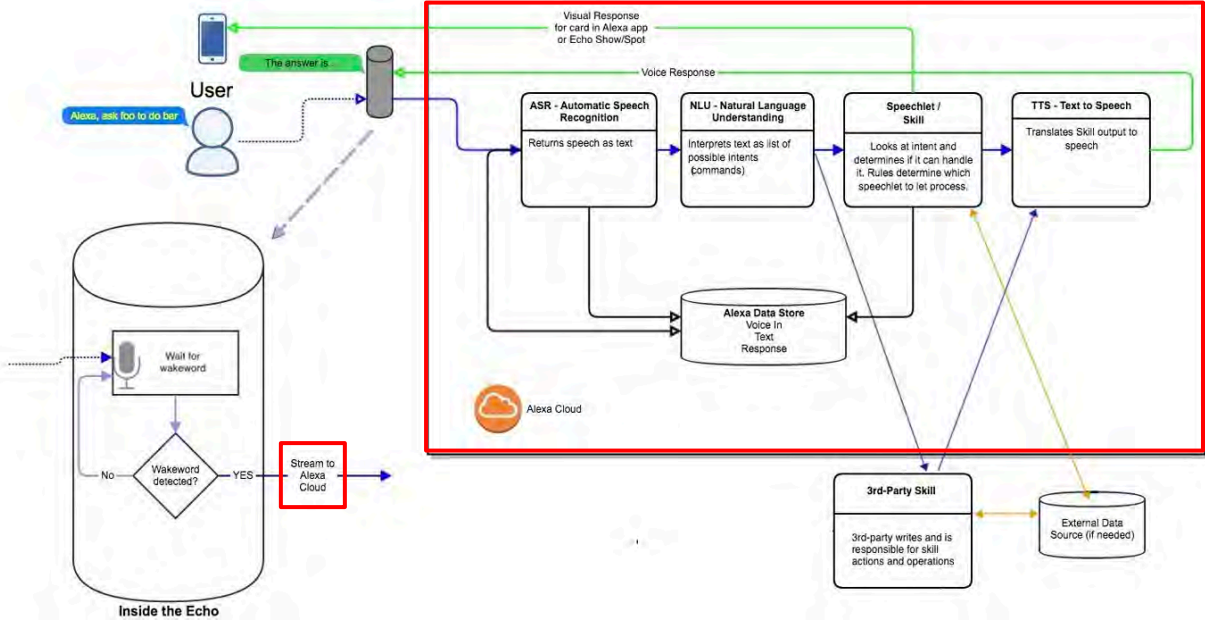Claim preamble may not serve as a limitation.

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Claim 1	Analysis	Select Evidence
coupling the front-end processor to the network-attached server over a network to perform the speech recognition using the resources.	Amazon couples the front-end processor to the network-attached server over a network to perform the speech recognition using the resources. Amazon Echo devices are couples to the Alexa cloud that uses the voice profiles to perform speech recognition.	 Source: https://d1.awsstatic.com/product-marketing/A4B/White%20Paper%20-%20Alexa%20Privacy%20and%20Data%20Handling%20Overview.pdf (pg 1). **3. What happens when I speak to Alexa?** When you speak to Alexa, a recording of what you asked Alexa is sent to Amazon's cloud where we process your request and other information to respond to you. For example, when you ask "Alexa, play top hits on Amazon Music" we use the recording of your request and information from Amazon Music to play top hits. Source: https://www.amazon.com/gp/help/customer/display.html/ref=help_search_1-4?ie=UTF8&nodeId=201602230&qid=1575887896&sr=1-4

Non-limiting example of infringement based on information presently available (draft/subject to revision).
Claim preamble may not serve as a limitation.

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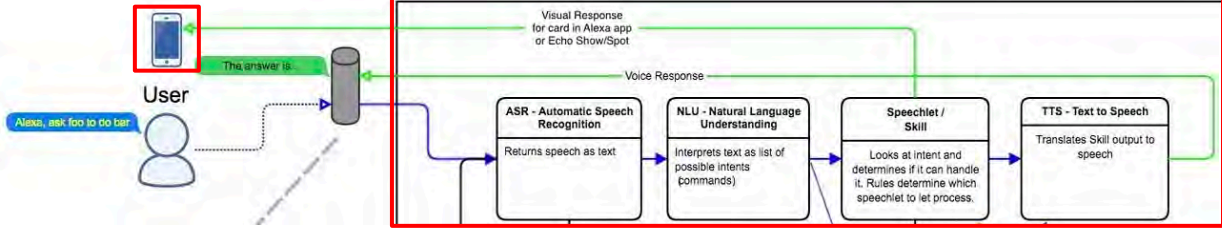| Claim 4	Analysis	Select Evidence
The method of claim 1 wherein the stored resources comprise a speaker signature data structure comprising at least one speaker dependent voice model.	Amazon performs the method of claim 1 wherein the stored resources comprise a speaker signature data structure comprising at least one speaker dependent voice model.	**19. How does voice ID work?** You can create a voice ID, so Alexa can call you by name and do more to personalize your experience. When you create a voice ID, Alexa uses recordings of your voice to create an acoustic model of your voice characteristics and to update that model over time to improve Alexa's ability to recognize you. Alexa stores these acoustic models in the cloud. If your voice ID is not recognized for 18 months, we will automatically delete the acoustic model for your voice. If Alexa recognizes your voice when you are using a third-party skill, that skill may receive a numeric identifier that allows it to distinguish you from other users in your Source: https://www.amazon.com/gp/help/customer/display.html/ref=help_search_1-4?ie=UTF8&nodeId=201602230&qid=1575887896&sr=1-4 # What are Alexa Built-in Devices? The world's leading OEMs offer Alexa Built-in devices that let customers talk directly with Alexa through a microphone and speaker. Alexa turns your device into a smart device, and expands its capabilities. Customers can ask Alexa for help with everyday tasks and entertainment, and control Alexa connected devices or their own device. Source: https://developer.amazon.com/en-US/alexa/devices/alexa-built-in Every Alexa skill has a *voice interaction model* that defines the words and phrases that users can say to Alexa to make the skill do what they want. Alexa supports two types of interaction models: • **Pre-built voice interaction model** – Alexa defines the set of utterances for each skill type for you. • **Custom voice interaction model** – You define the phrases or utterances that users can say to interact with your skill. Source: https://developer.amazon.com/en-US/docs/alexa/ask-overviews/voice-interaction-models.html

Non-limiting example of infringement based on information presently available (draft/subject to revision).
Claim preamble may not serve as a limitation.

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Claim 5	Analysis	Select Evidence
The method of claim 1 further comprising the acts of: transmitting the speech signal to the network-attached server; and performing speech recognition of the speech signal in the network-attached processor.	Amazon performs the method of claim 1 comprising the acts of transmitting the speech signal to the network-attached server and performing speech recognition of the speech signal in the network-attached processor.	**3. What happens when I speak to Alexa?** When you speak to Alexa, a recording of what you asked Alexa is sent to Amazon's cloud where we process your request and other information to respond to you. For example, when you ask "Alexa, play top hits on Amazon Music" we use the recording of your request and information from Amazon Music to play top hits. Source: https://www.amazon.com/gp/help/customer/display.html/ref=help_search_1-4?ie=UTF8&nodeId=201602230&qid=1575887896&sr=1-4 Source: https://d1.awsstatic.com/product-marketing/A4B/White%20Paper%20-%20Alexa%20Privacy%20and%20Data%20Handling%20Overview.pdf (pg 1).

Non-limiting example of infringement based on information presently available (draft/subject to revision). Claim preamble may not serve as a limitation.

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Claim 7	Analysis	Select Evidence
The method of claim 5 further comprising the acts of: returning a response from the network-attached server to the front-end processor comprising text corresponding to the speech signal.	Amazon performs the method of claim 5 by returning a response from the network-attached server to the front-end processor comprising text corresponding to the speech signal.	The Alexa Skills Kit provides two categories of display templates, each with several specifically defined templates: • A **body template** displays text and images. These images cannot be made selectable. • A **list template** displays a scrollable list of items, each with associated text and optional images. These images can be made selectable, as described in this reference. Source: https://developer.amazon.com/en-US/docs/alexa/custom-skills/display-interface-reference.html A big part of the value I found in the Echo Show was how useful it was to... well, have the device *show* me information. When I asked about the weather, Alexa would respond and ~~show me the~~ forecast for the next few days. When I asked about my to-do list, I co~~uld see it and hear it as~~ well. ~~Having some time to sit there and digest the info in a visu~~al way was imme~~diately useful. It's not necessary, but it is nice.~~ And if you're not right in view of the screen, you can still talk to the Echo Show and get the info you're looking for. Source: https://www.engadget.com/2017-06-26-amazon-echo-show-review.html

Non-limiting example of infringement based on information presently available (draft/subject to revision).
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Claim 7	Analysis	Select Evidence
		Source: https://d1.awsstatic.com/product-marketing/A4B/White%20Paper%20-%20Alexa%20Privacy%20and%20Data%20Handling%20Overview.pdf (pg 1).

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